This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (Currently Amended) A method for calibration of an optoelectronic sensor irradiated at least intermittently with UV light, comprising the following steps:
   - obtaining a first response characteristic of the sensor by
   -- illuminating the sensor with the light of at least one light source,
   -- varying the light quantity of the light incident onto the sensor,
   -- determining the magnitude of an electrical output signal of the sensor as a function of the light quantity received by the sensor;
   - storing the first response characteristic; and
   - acquiring response characteristics at later points in time after illuminating the sensor with UV light;
   - calibrating the sensor by comparing the response characteristics to the first response characteristic in order to identify changes in the sensor response due to exposure to the UV light and to correct the response characteristics.

2. (Previously Presented) The method as defined in Claim 1, wherein the light quantity incident onto the sensor is varied by introducing at least one filter into an illuminating beam path between the light source and the sensor.

3. (Previously Presented) The method as defined in Claim 2, further comprising more than one filter being an absorption filter or a scattering filter in varying numbers and/or having a varying absorption or scattering effect, or a gray wedge, disposed in the illuminating beam path.

4. (Original) The method as defined in Claim 1, wherein the light quantity incident onto the sensor is varied by modifying the aperture of an aperture stop introduced into the illuminating beam path between the light source and the sensor, or by way of aperture stops having different apertures.

5. (Original) The method as defined in Claim 1, wherein the light quantity incident onto the sensor is varied by way of an electronically controlled exposure time.

6. (Previously Presented) The method as defined in Claim 1, wherein the response characteristics are obtained at those light wavelengths at which the sensor is used for measurement or observation tasks.

7. (Original) The method defined in Claim 1, wherein the sensor is used as a spatially resolving sensor, and UV images are acquired with the sensor.

8. (Original) The method as defined in Claim 7, wherein features of imaged specimens are measured by image processing.

9. (Original) The method as defined in Claim 1, wherein the method is used in a UV microscope.

10. (Original) The method as defined in Claim 9, wherein feature widths and/or spacings on substrates, in particular on masks or wafers in semiconductor fabrication, are measured.

11. (Previously Amended) A method for measuring features on a substrate using a UV microscope and a spatially resolving optoelectronic sensor, comprising the steps:

- acquiring UV images of the features on the substrate;
- calibrating the sensor from time to time, by
  -- obtaining a present response characteristic of the sensor by way of the variation of a UV light quantity received by the sensor,
  -- ~~comparing and correcting the present response characteristic using~~ obtaining a first response characteristic obtained by illuminating the sensor with the light of at least one light source, varying the light quantity of the light incident onto

the sensor, determining the magnitude of an electrical output signal of the sensor as a function of the light quantity received by the sensor, and storing the first response characteristic;

-- comparing ~~and correcting~~ the present response characteristic to the first response characteristic and obtaining a corrected response characteristic; and

- measuring the features by image processing using the corrected response characteristic of the sensor.

12. (Currently Amended) An apparatus for calibration of an optoelectronic sensor irradiated intermittently with UV light, comprising:
- at least one light source for illuminating the sensor;
- calibration means for varying the light quantity incident onto the sensor and for obtaining a first response and a present response characteristic of the sensor, the present response being obtained after irradiating the sensor with the UV light;
- an evaluation unit for correcting the present response characteristic of the sensor by using the first response and comparing it to the present response; and
- a memory for storing at least the first response characteristic.

13. (Original) The apparatus as defined in Claim 12, wherein the calibration means are absorption filters, scattering filters, a gray wedge, aperture stops having various openings, an aperture stop having a variable opening, or an exposure control system for setting different exposure times.

14. (Original) The apparatus as defined in Claim 12 wherein a control device for automated use of the calibration means is provided.

15. (Original) The apparatus as defined in Claim 12, wherein the apparatus is provided in a UV microscope.

16. (Original) The apparatus as defined in Claim 15, wherein the apparatus is provided for the measurement of feature widths and spacings.

17. (Currently Amended) An apparatus for measuring features of a substrate, comprising

- a UV microscope and a spatially resolving optoelectronic sensor for acquiring UV images of the features on the substrate;
- calibration means for calibrating the sensor, wherein a first response characteristic is obtained by illuminating the sensor with the light of at least one light source, by varying the light quantity of the light incident onto the sensor, by determining the magnitude of an electrical output signal of the sensor as a function of the light quantity received by the sensor, and wherein a present response characteristic of the sensor are obtained by irradiating the sensor by UV light of varying a light quantity incident onto the sensor; and
- an evaluation unit
  - -- for obtaining a corrected response characteristic by comparing ~~correction of~~ the present response characteristic to ~~using~~ the first response characteristic, and
  - -- for evaluating the features by image processing using the corrected response characteristic of the sensor.